Khus or Vetiver - the magic grass

Khus originated in South India

Across the world, this is one of the most respected grasses

It has found wide applications, for lot of purposes

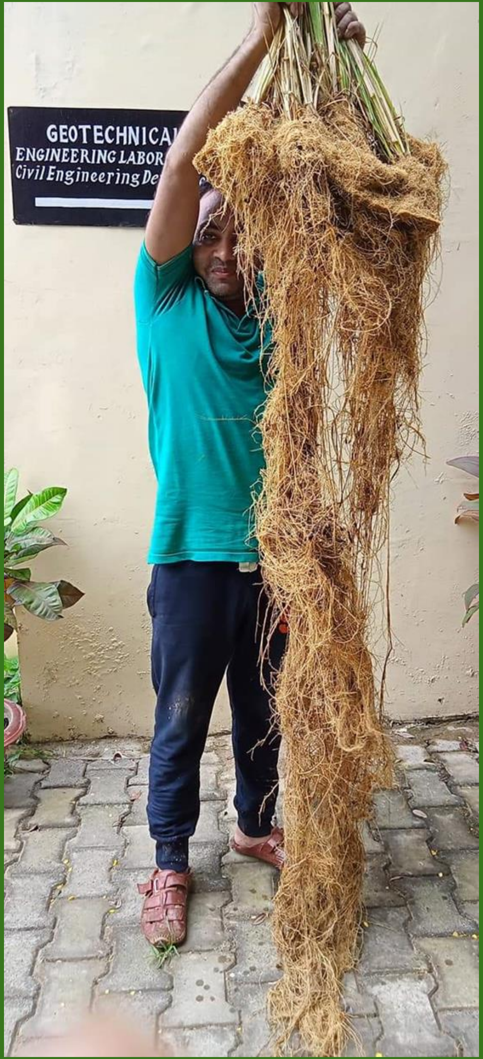
Information sources:

- Dr. Paul Truong Technical Director, the Vetiver Network International
- vetiver.org
- Sh. Patanjali Jha, Vanya Naturals farm, Purniya, Bihar

Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow, encourages vetiver for multiple uses

Let us find out why vetiver is considered a magical grass

Vetiver has long, massive, penetrating and very strong root system



This makes it a very hardy plant, tolerating very difficult conditions

Excellent as a pioneer species

IT is NON-INVASIVE since it doesn't produce proper seed

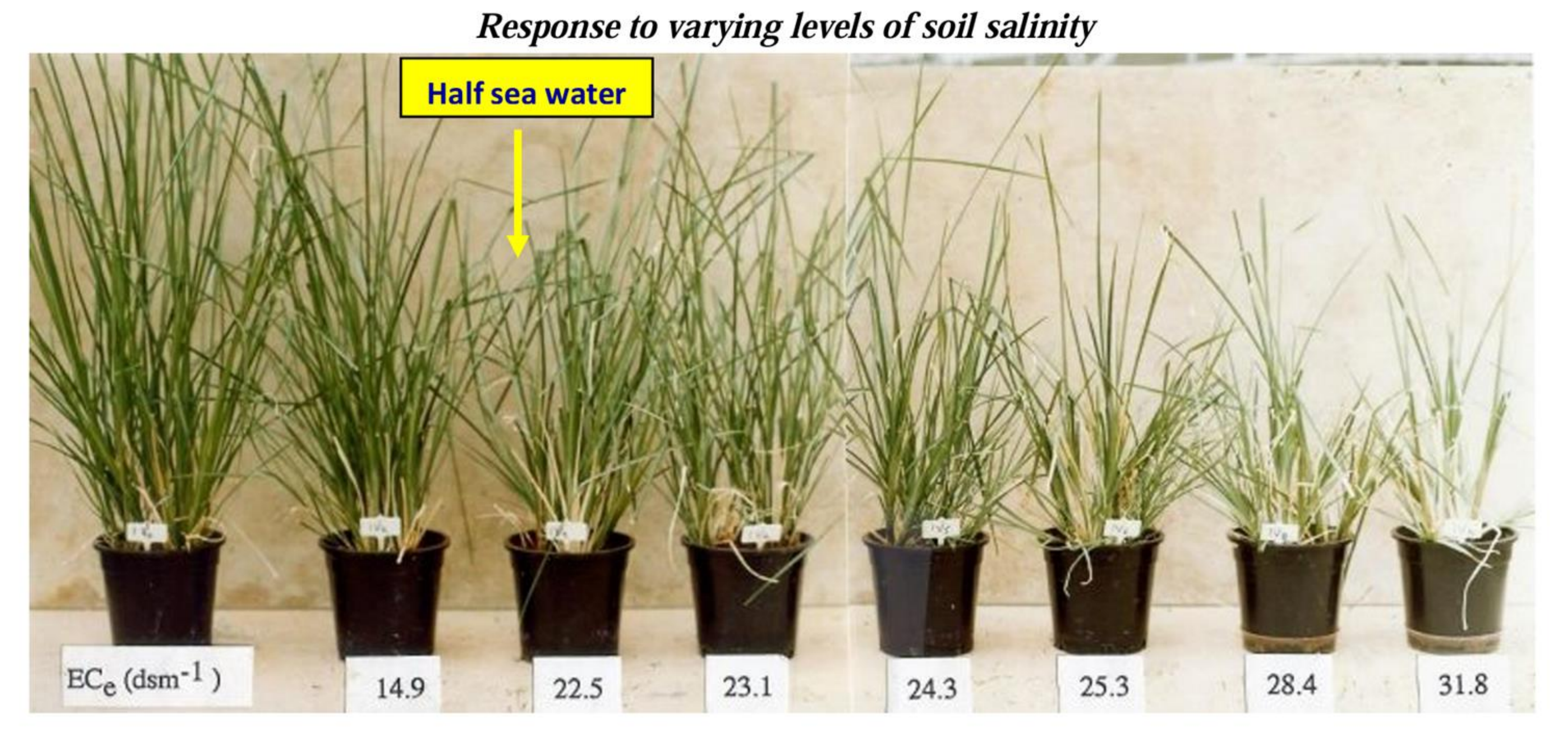
Improves badly degraded soil, where nothing else will take root

- Tolerance to high acidity and alkalinity both (pH between 3.5 and 11.5)
- Very few crops have such a wide range of pH tolerance

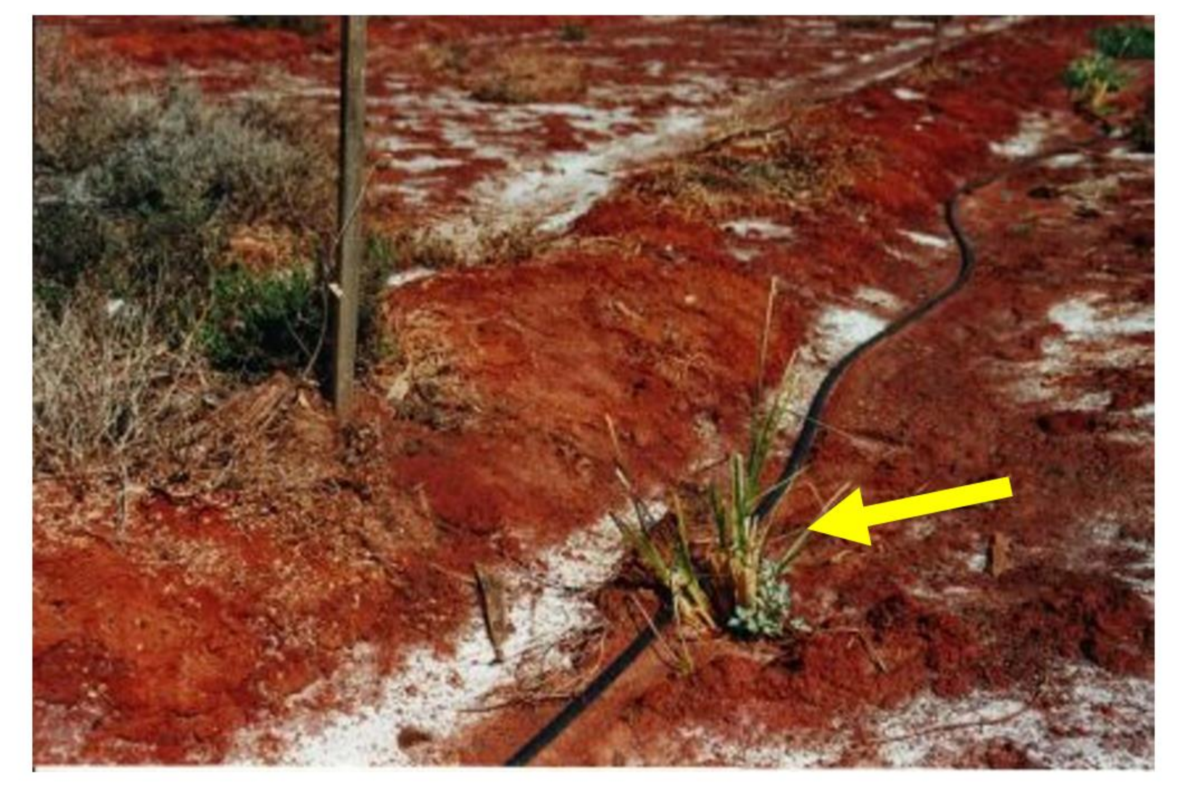
(Soil pH has a profound effect on nutrient availability and most plants are affected)

This means vetiver can grow on acidic, alkaline and salty- all kinds of soils

Salt tolerance

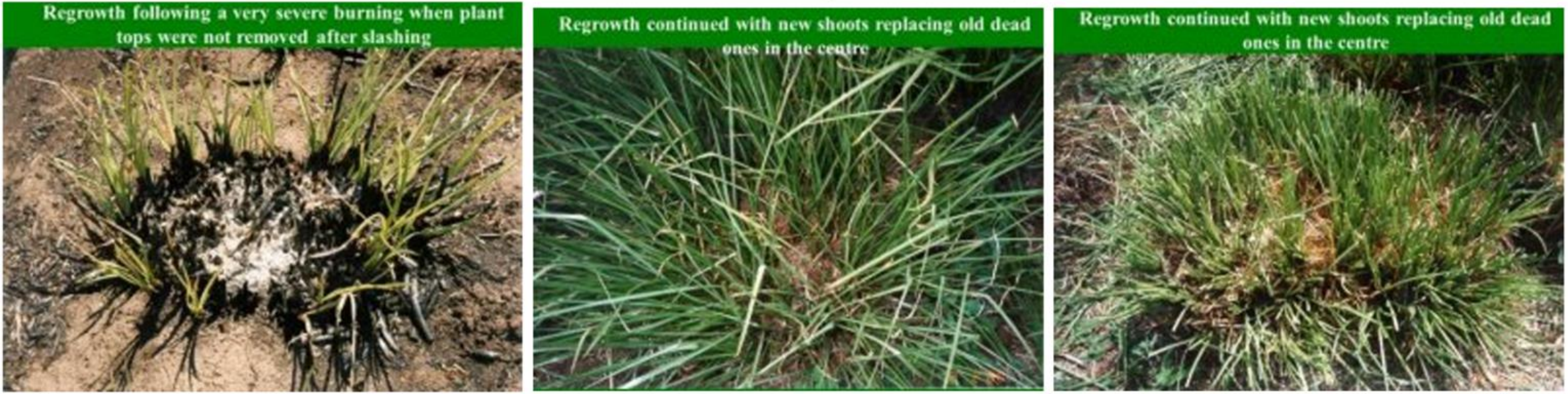


High salt



It can survive 55 deg C temperature, even fire and snow!!!

On individual plant clump in Australia



Regrowth following a very severe burning when plant tops were not removed after slashing

Regrowth continued with new shoots replacing old dead ones in the centre

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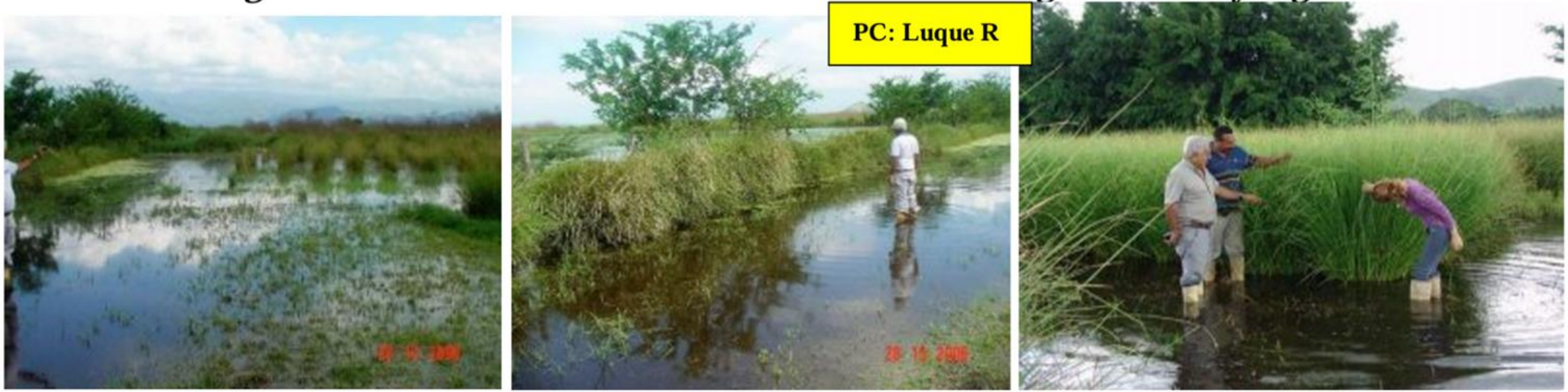
Survives months of flooding!!

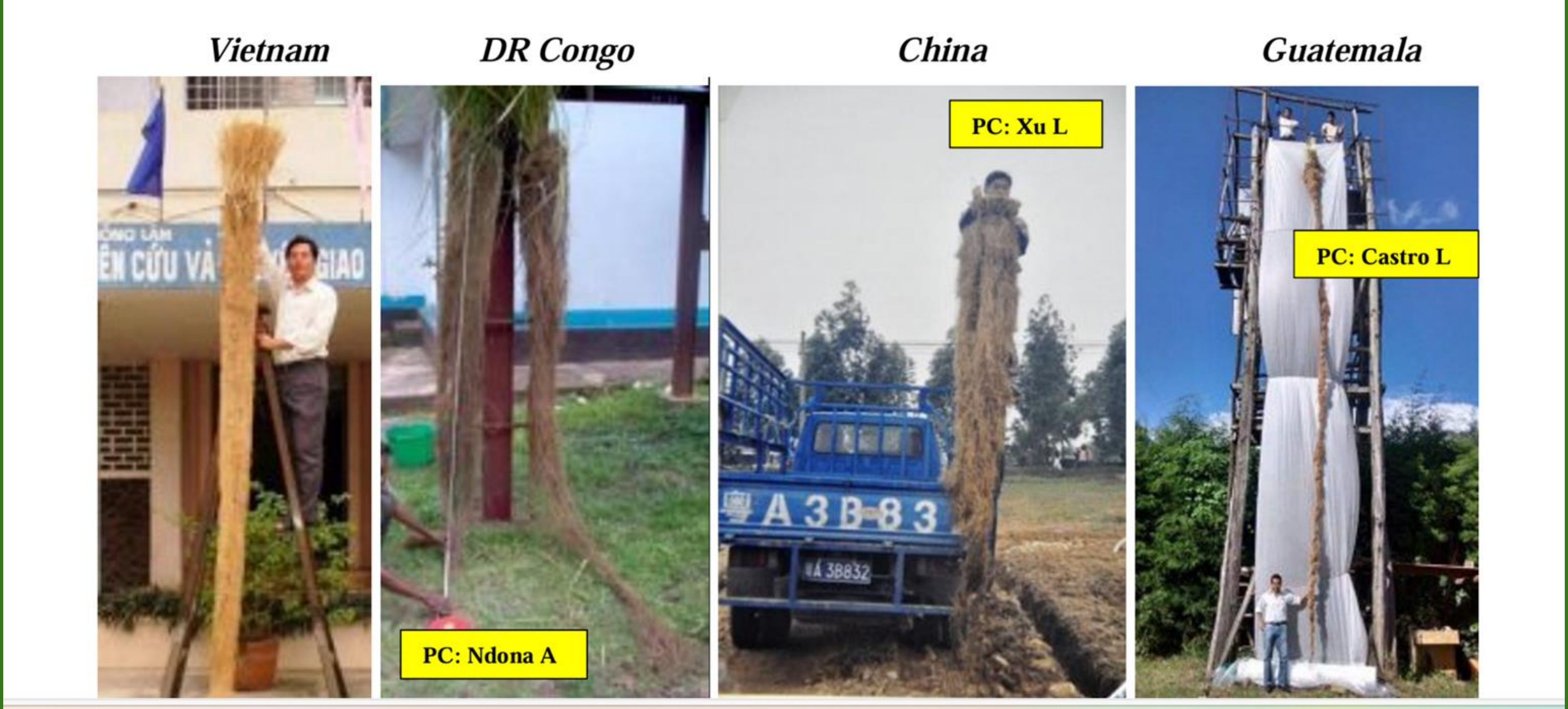
Vetiver growth was not affected after 7 months of flooding in Maracay region of Venezuela



Drought

Under drought, vetiver extends its roots until they reach the moist subsoil and beyond to the water table. Major adaptation by roots

Upon creating artificial water deficiency



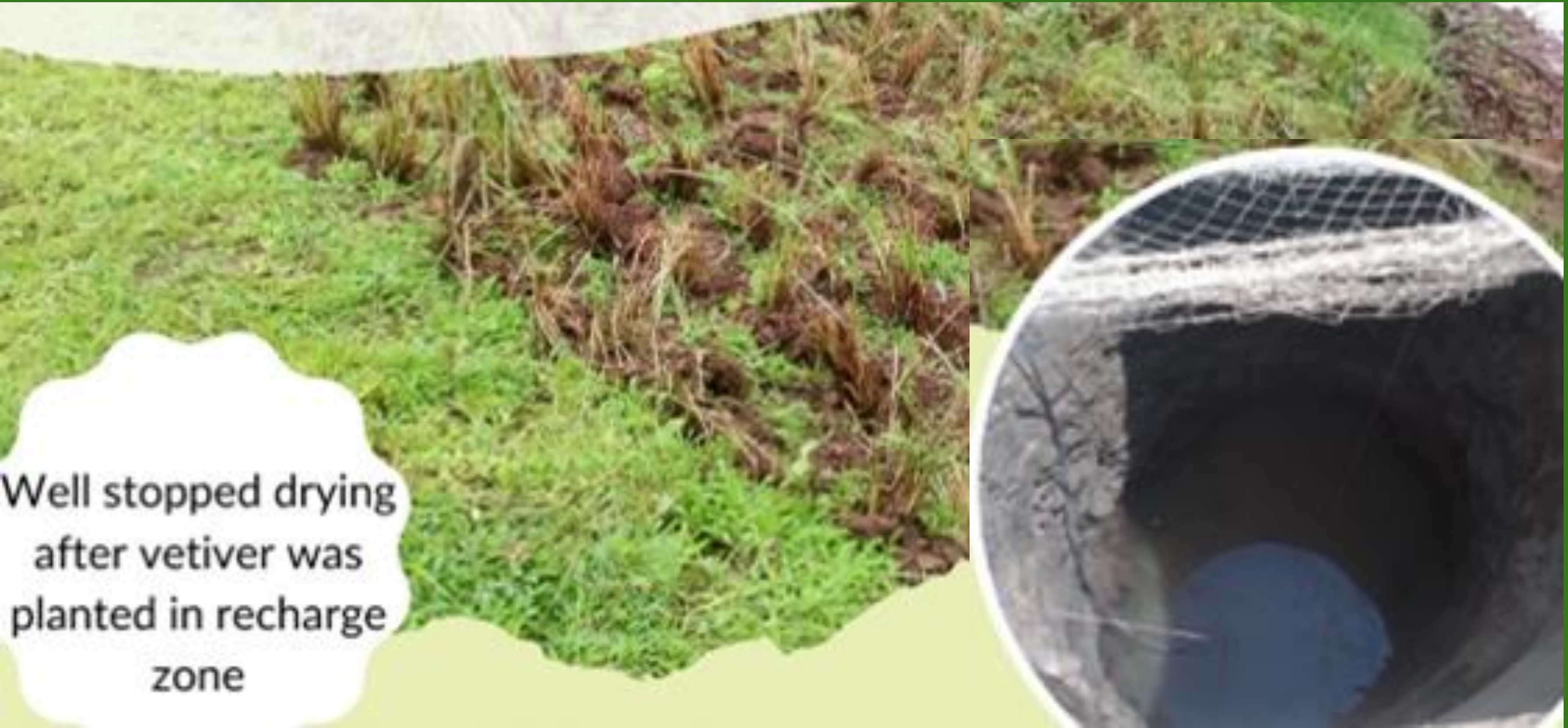
It is good for fodder

Gives green fodder through the year, if it is cut every 1 to 3 months

Groundwater recharge

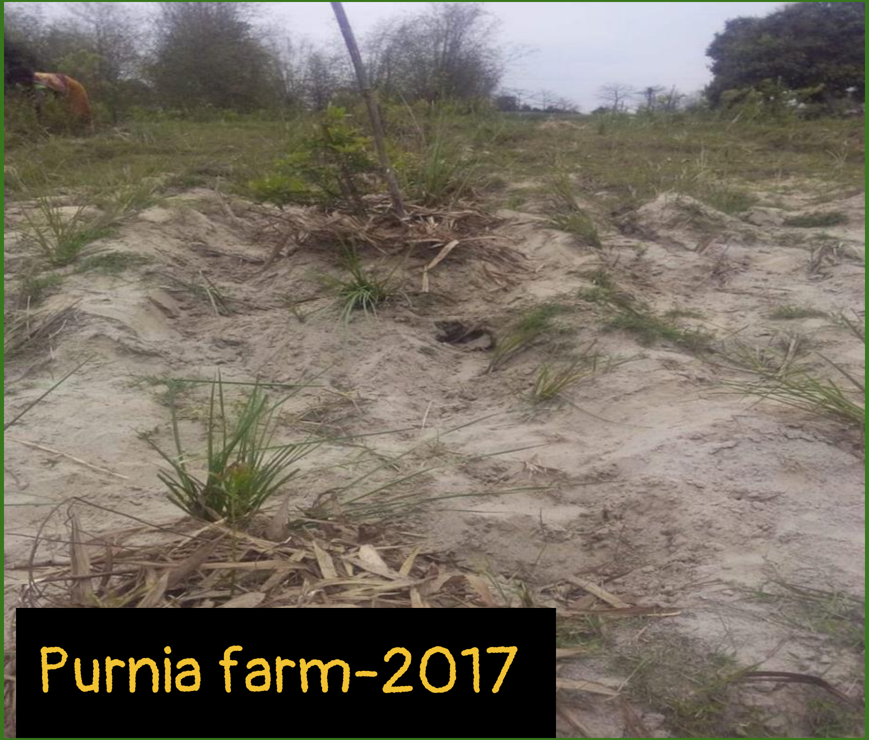
Dense clumps prevent soil erosion and force rainwater to seep underground

Raah Foundation well in Vill. Dabhosa, Nashik

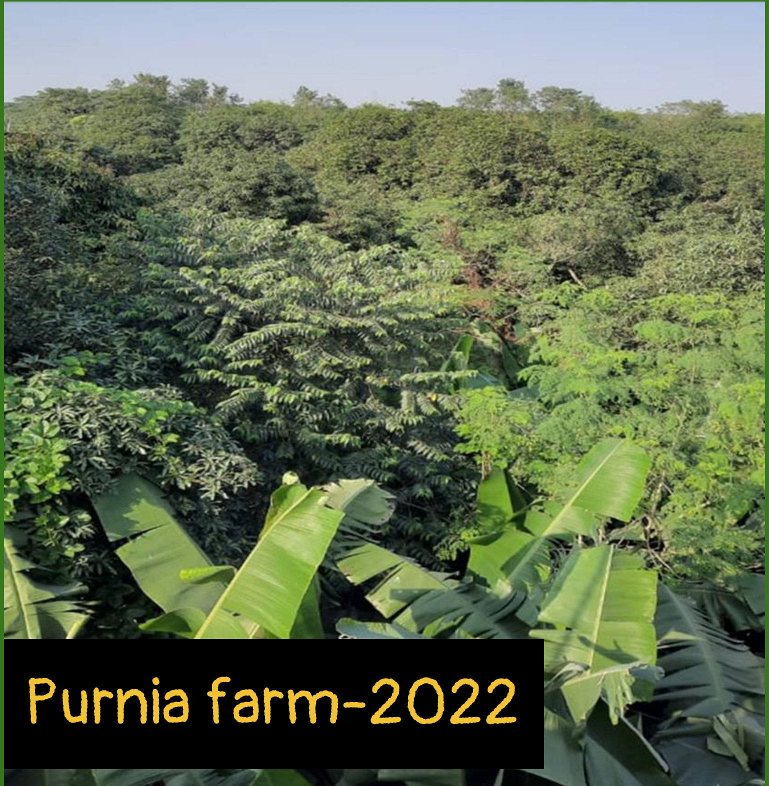


Well stopped drying after vetiver was planted in recharge zone

Khus for food forest and ecosystem restoration

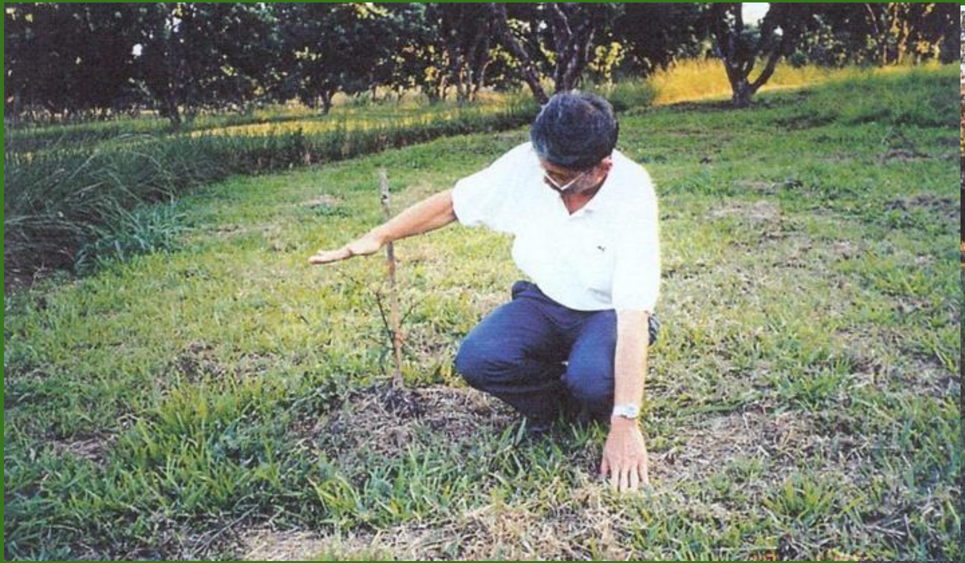


Purnia farm-2017

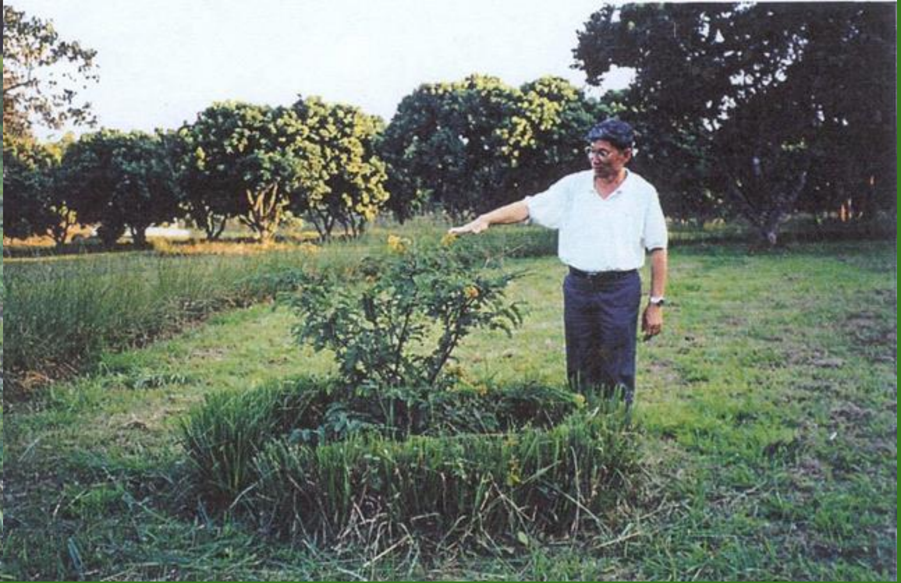


Purnia farm-2022

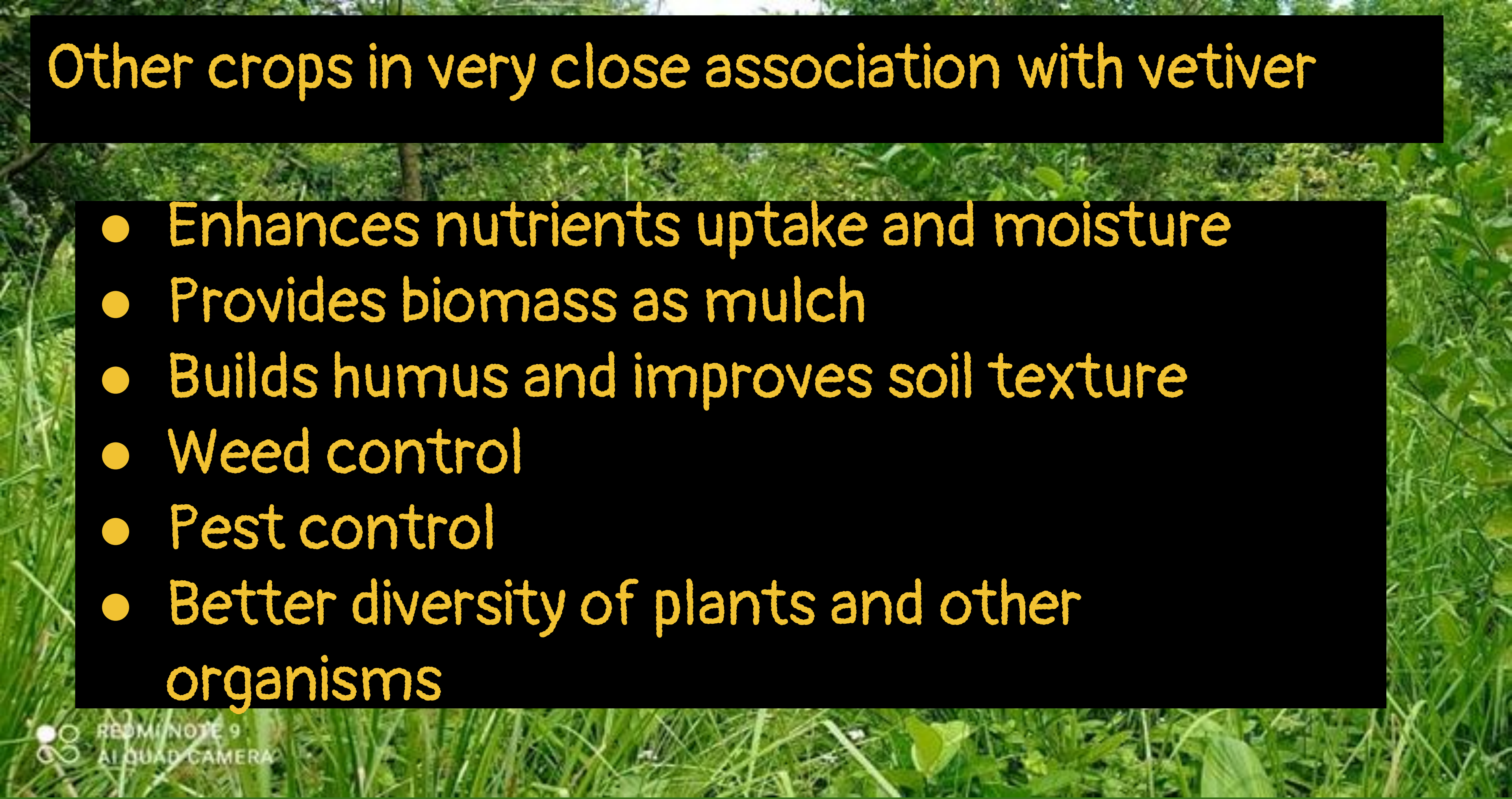
Imli tree growth with vetiver- Chiangrai Research Station, Thailand.



Without vetiver



Surrounded by vetiver



Other crops in very close association with vetiver

- Enhances nutrients uptake and moisture
- Provides biomass as mulch
- Builds humus and improves soil texture
- Weed control
- Pest control
- Better diversity of plants and other organisms

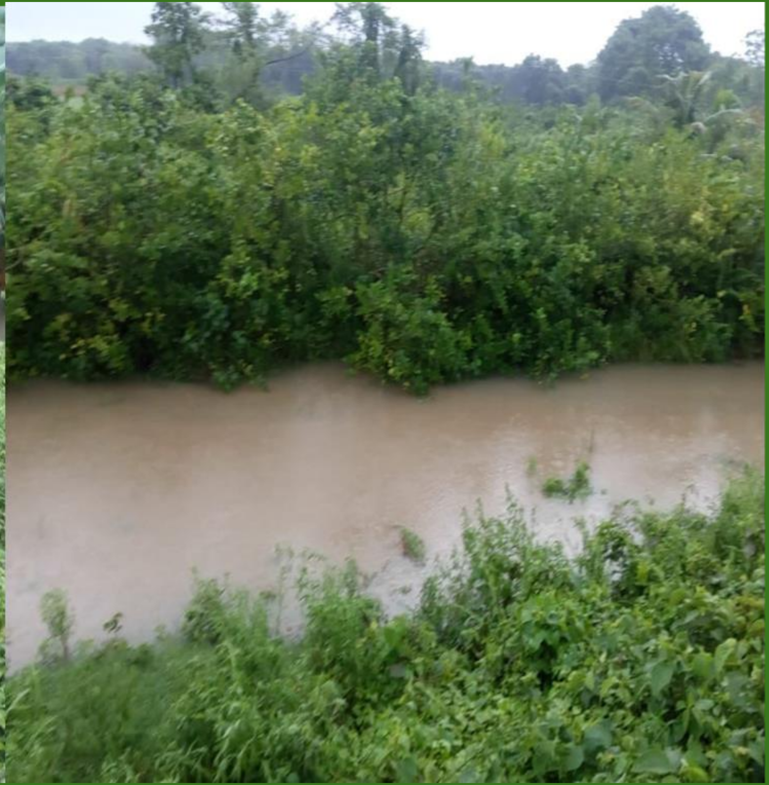
Due to a dense & heavy root system

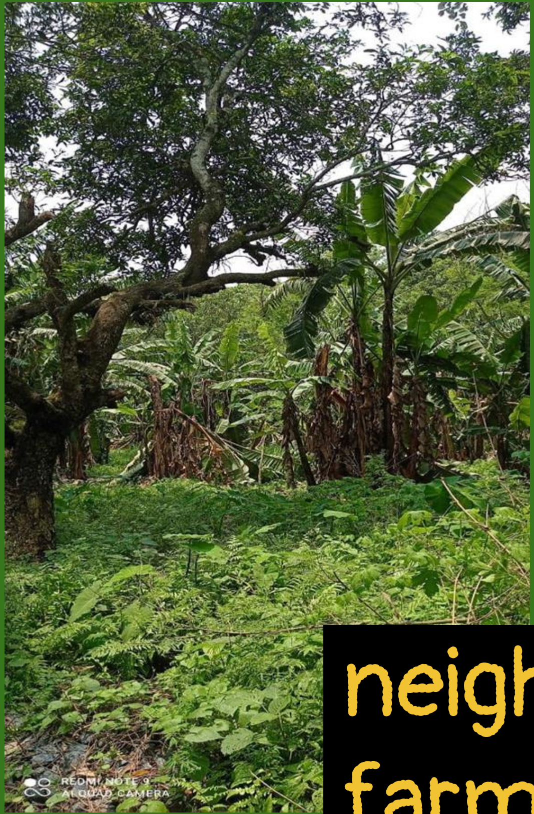
- Enhances water distribution across a field
- Creates soil pores-better moisture penetration and aeration
- Recycles soil nutrients from depth through association with fungal network

Vanya farm

Umaria farm

Vanya farm after heavy thunderstorm





Next day

neighbouring farms destroyed

Vetiver cools its surroundings

Temperature can be brought down by 5 to 9 deg C

River bank stabilization

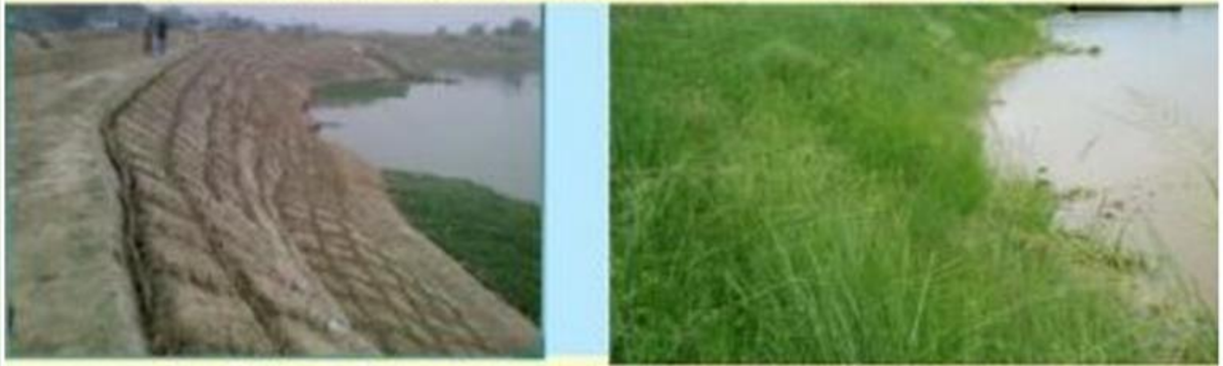
Between Kanpur and Banaras, Indian army used vetiver for Ganga bank stabilization.

Riverbank stabilisation in Australia

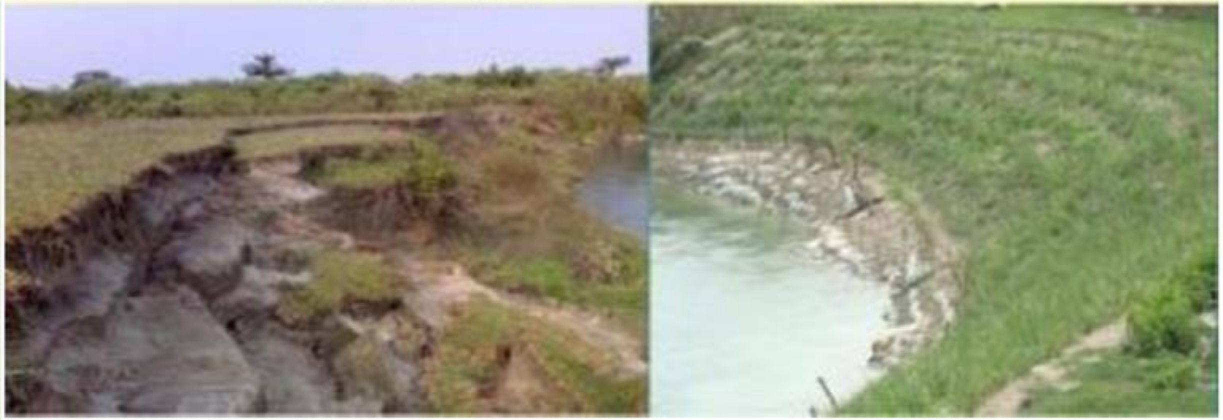
Two years after planting

Five years after planting

Slope stabilization

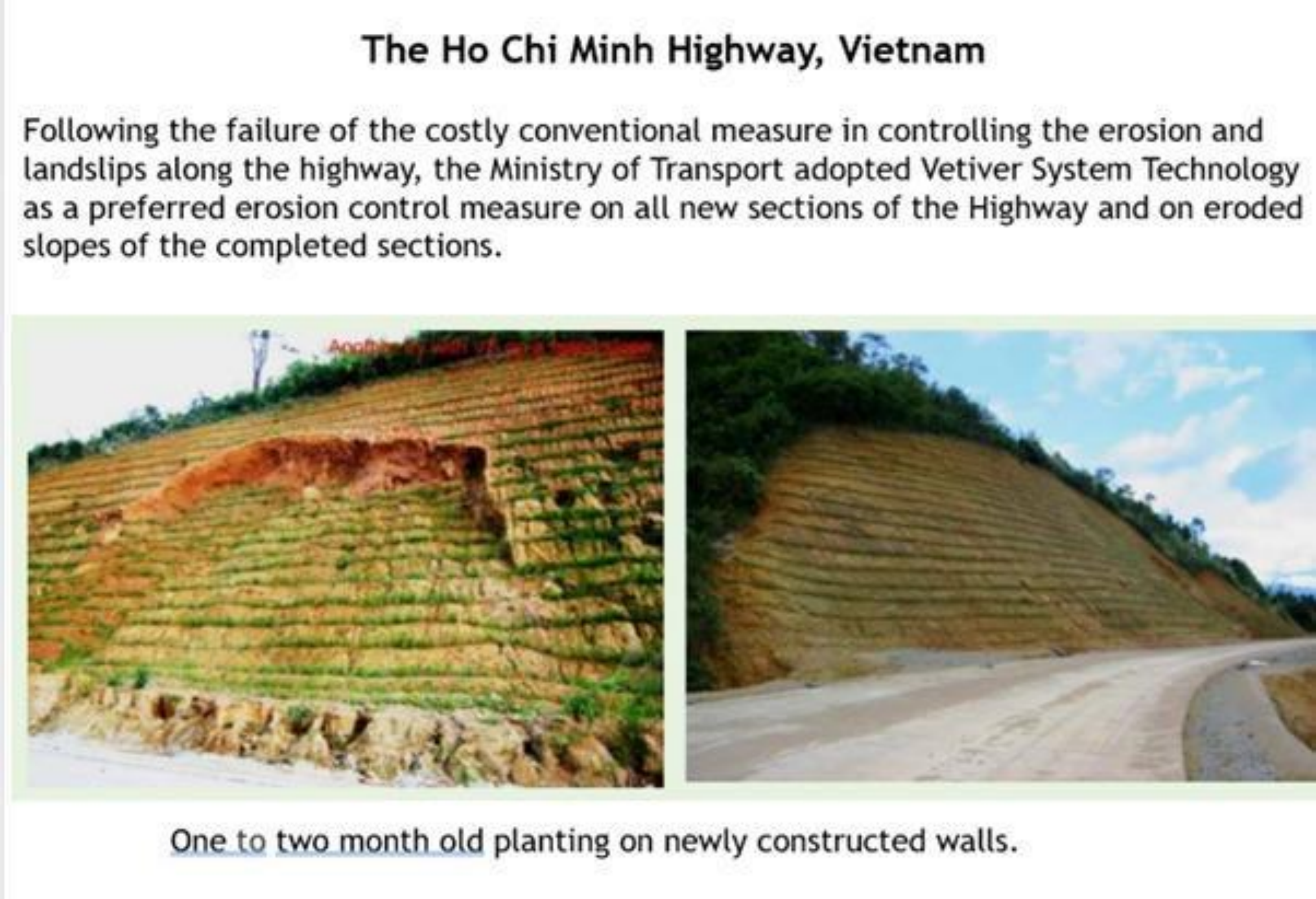


Majuli River, before and after vetiver planting, note grid pattern



Na-Dihing River, before and after vetiver planting, note silt deposition occurred at the toe of the bank

On Highways



The Ho Chi Minh Highway, Vietnam

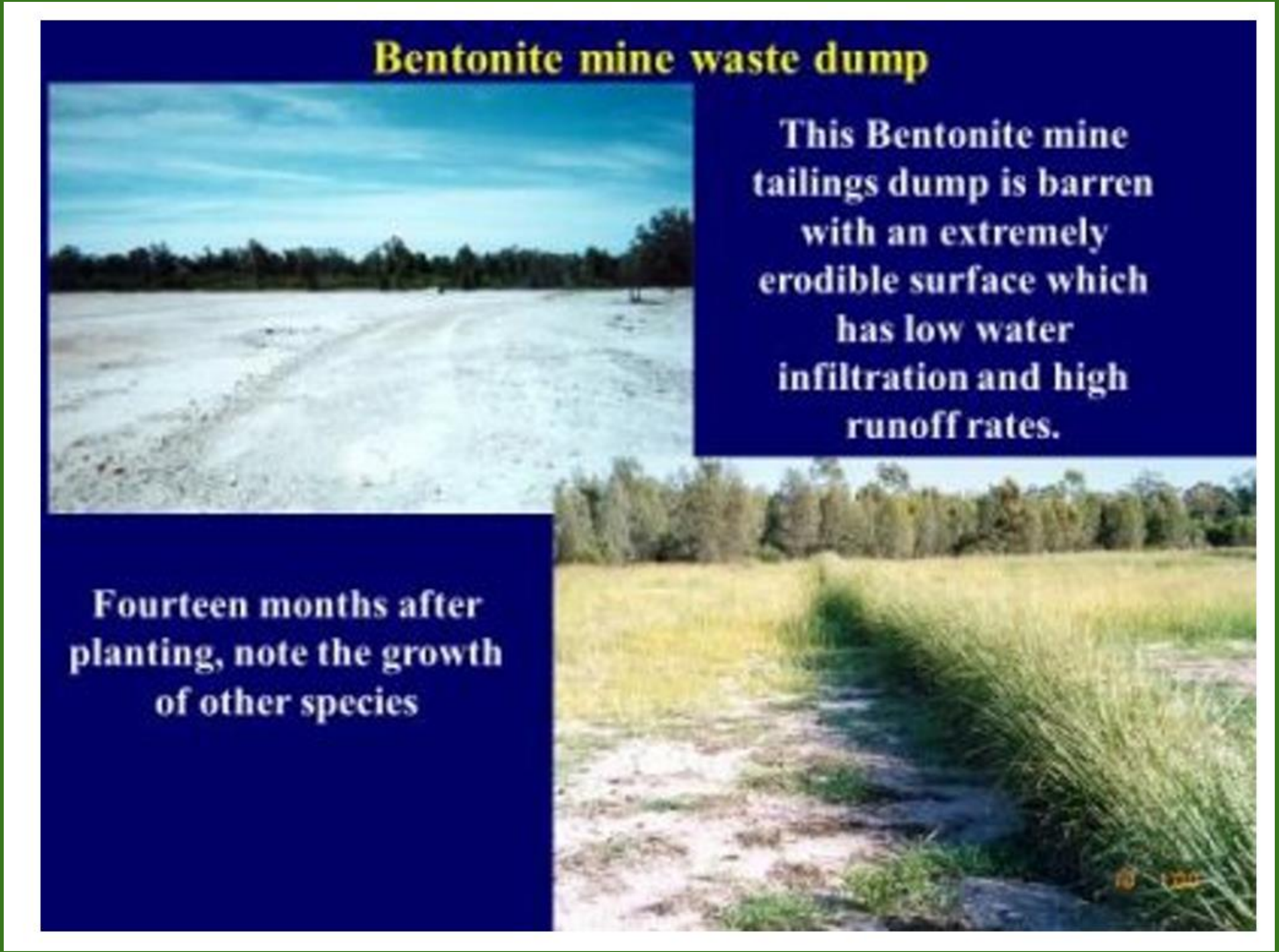
Following the failure of the costly conventional measure in controlling the erosion and landslips along the highway, the Ministry of Transport adopted Vetiver System Technology as a preferred erosion control measure on all new sections of the Highway and on eroded slopes of the completed sections.

One to two month old planting on newly constructed walls.

High tolerance to pollutants, including heavy metals which most plants cannot tolerate

Use as water filter and purifier system

Vetiver tolerates leachate



Bentonite mine waste dump

This Bentonite mine tailings dump is barren with an extremely erodible surface which has low water infiltration and high runoff rates.

Fourteen months after planting, note the growth of other species

Vetiver pontoon treatment in industrial wastewater ponds in Australia

Other uses for vetiver are - essential oil extraction from roots, thatch, cooling rugs (chatai) and handicrafts

Vetiver mobile oil distillation unit developed by CIMAP